

IN THE CLAIMS

1-10 (canceled)

11. (new) A heat exchanger for the exchange of heat between a first air stream and a second air stream, comprising:

a plurality of plates delimiting first and second exchange spaces disposed next to each other in a direction transverse with respect to the plates, with each of the first exchange spaces at least one plate is conductive and wherein said first air stream is adapted to flow through said first exchange spaces, and said second air stream is adapted to flow through said second exchange spaces;

an ionization device for ionizing particles entrained in said first air stream so that the particles deposit at said conductive plates of the first exchange spaces;

a water distribution system with nozzles for periodically discharging water into said first exchange spaces for cleaning the plates of the heat exchanger from deposited particles, bacteria, algae and other deposits; and

a water collection device provided in a lower region of the heat exchanger for discharging collected water.

12. (new) The heat exchanger according to claim 11 wherein the water distribution system comprises means for discharging water into the second exchange spaces for cleaning the second exchange spaces.

13. (new) The heat exchanger according to claim 11 wherein the water distribution system comprises atomizing nozzles for spraying water as fine mist into the second exchange spaces for cooling said second air stream.

14. (new) The heat exchanger according to claim 12 wherein the water distribution system further comprises atomizing nozzles for spraying water as fine mist into the second exchange spaces.

15. (new) The heat exchanger according to claim 11 wherein at least parts of said conductive plates have an active purification region consisting of high-grade steel bearing one of the material numbers selected from 1.4571 and 1.4301.

16. (new) The heat exchanger according to claim 12 wherein at least parts of said conductive plates have an active purification region consisting of high-grade steel bearing the material numbers 1.4571 or 1.4301.

17. (new) The heat exchanger according to claim 13 wherein at least parts of said conductive plates have an active purification region consisting of high-grade steel bearing one of the material numbers selected from 1.4571 and 1.4301.

18. (new) The heat exchanger according to claim 14 wherein at least parts of said conductive plates have an active purification region consisting of high-grade steel bearing the material numbers 1.4571 or 1.4301.

19. (new) The heat exchanger according to claim 11 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

20. (new) The heat exchanger according to claim 12 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

21. (new) The heat exchanger according to claim 13 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

22. (new) The heat exchanger according to claim 14 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

23. (new) The heat exchanger according to claim 15 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

24. (new) The heat exchanger according to claim 16 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

25. (new) The heat exchanger according to claim 17 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.

26. (new) The heat exchanger according to claim 18 wherein the ionization device comprises an ionization filament network charged with a high DC voltage and wherein said conductive plates are at ground potential.